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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,451	05/21/2002	Igor Vladimir Khudyakov	A7728	5676

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EXAMINER	
MARKHAM, WESLEY D	

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 01/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/030,451	KHUDYAKOV ET AL.	
	Examiner	Art Unit	
	Wesley D Markham	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 May 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *1 total* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Claims 1 – 20 are currently pending in U.S. Application Serial No. 10/030,451, which is a 371 (i.e., National Stage) Application of PCT/US00/11879, filed on 6/16/2000, and an Office Action on the merits follows.

Information Disclosure Statement

2. The IDS filed on 1/10/2002 is acknowledged, and the references listed thereon have been considered by the examiner as indicated on the attached copy of the PTO/SB/08 form. Additionally, please note that the references listed on the International Search Report (ISR) corresponding to PCT/US00/11879 have also been considered.

Drawings

3. Acknowledgement is made of the formal drawing (1 sheet) filed by the applicant on 5/21/2002.
4. The drawing is objected to because the identifier of reference numeral "4" is misspelled (i.e., as "PLAN-CONCAVE LENS" instead of "PLANO-CONCAVE LENS"). A proposed drawing correction or corrected drawings are required in reply to the Office Action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities:

- Page 4, line 9 appears to contain a typographical error (i.e., the word "can" or "may" appears to be missing between the words "thereof" and "be").
- The specification lacks a "Brief Description of Drawings" section as required by 37 CFR 1.74 (see MPEP 608.01(f)).
- Page 5, line 17 appears to contain a typographical error. Specifically, it appears as though the phrase "beam expander 4" should read "beam expander 3" in order to correspond with the figure and the remainder of the specification.
- The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Specifically, the specification does not provide proper antecedent basis for the limitations of (1) Claims 5 and 15 (i.e., a laser that outputs pulses of visible light), (2) Claim 8 (i.e., a continuous wave laser that emits light in the UV range between 300 and 400 nm), and (3) Claim 16 (i.e., a laser beam emitting in the range of 300 – 400 nm).

Appropriate correction is required.

Claim Observations

6. Independent Claim 1 requires, in part, "a beam expander for expanding an output of the laser source". For the purposes of examination, the examiner notes that the

aforementioned "beam expander" is not the same as and does not read on a so-called "beam splitter" which simply splits an incoming laser beam into two different outgoing laser beams and does not expand the beam.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Fejer et al. (USPN 4,650,322).
9. Regarding independent **Claim 1**, Fejer et al. teaches an apparatus for measuring changes in the diameter of a fiber, the apparatus comprising a laser source "20", a beam expander "22" for expanding the output of the laser source, a first lens "24" operable to focus an output of the beam expander on a target fiber "26", and a concave optical element "28" disposed on an opposite side of the target fiber relative to the beam expander and the first lens "24" (Abstract, Figure 2B, and Col.2, lines 55 – 68). Fejer et al. does not explicitly teach that the apparatus is "for photocuring a coating on a fiber", as recited in the preamble of Claim 1. However, this statement is simply a statement of intended use and is not given patentable weight in an apparatus claim. Further, since the apparatus of Fejer et al. is clearly capable of

focusing laser light on a fiber (see Figure 2B and Col.2, lines 55 – 68), the apparatus is also capable of photocuring a coating on a fiber. Therefore, the apparatus of Fejer et al. anticipates the apparatus of Claim 1.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 1, 9, 10, 12, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kruishoop (USPN 4,849,640) in view of Osborne (USPN 4,069,080).

13. Regarding independent **Claims 1 and 12**, Kruishoop teaches an apparatus and a method for photocuring a fiber / coating on a fiber (Abstract and Col.1, lines 11 – 26). The apparatus of Kruishoop comprises a laser source that emits UV-light (Col.1, lines 63 – 68, and Col.2, lines 1 – 13), an optical system for imaging the light source, the optical system comprising a plurality of lenses (Col.2, lines 14 – 15), and a concave optical element disposed on an opposite side of the fiber relative to the emitted light source (Figure 2, reference numbers "S_5" and "S_6", Col.2, lines 58 – 66, and Col.4, lines 37 – 46). The photocuring method of Kruishoop comprises focusing the light from the light source (e.g., the laser) into an elongate, quasi-linear image (i.e., a "strip of light", as required by Claim 12) onto a front side of the fiber (Col.1, lines 54 – 68, and Col.2, lines 1 – 4 and 12 – 13), and reflecting the light rays which fall past the fiber onto a rear side of the fiber so that the maximum portion of the light rays are utilized in the curing process (Figure 2, reference numbers "S_5" and "S_6", Col.2, lines 58 – 66, and Col.4, lines 37 – 46). Regarding Claim 1, Kruishoop does not explicitly teach that the apparatus comprise (1) a beam expander for expanding the output of the laser source, and (2) a first lens operable to focus an output of the beam expander on a fiber. Specifically, Kruishoop is silent regarding the details of the optical system comprising a plurality of lenses used to image the light (i.e., to optically transform the light into a quasi-linear image that is focused onto the fiber). Osborne teaches an apparatus and a method specifically designed to focus a laser beam into a line (Abstract), the apparatus comprising a plurality of lenses (Figure 1, reference numbers "3" and "4"). The laser beam focusing apparatus of Osborne

comprises a beam expander "2" for expanding an output of the laser source "1", and a first lens "3" operable to focus an output of the beam expander into a line (Figure 1, Col.2, lines 60 – 68, and Col.3, lines 1 – 32 and 66 – 68). It would have been obvious to one of ordinary skill in the art to utilize the laser beam focusing apparatus of Osborne as the optical focusing system in the photocuring apparatus of Kruishoop with the reasonable expectation of (1) success, as Kruishoop generally teaches using an optical system comprising a plurality of lenses for focusing light into a line, and the laser beam focusing apparatus of Osborne is a specific example of an optical system comprising a plurality of lenses specifically designed to focus light into a line (as desired by Kruishoop), and (2) obtaining the benefits of using the optical system of Osborne, such as its relative simplicity in comparison to the mirror-based optical focusing system taught by Kruishoop. Regarding Claim 12, Kruishoop does not explicitly teach expanding a laser beam to produce an expanded diameter laser beam, which is then focused into a strip of light onto the fiber. However, Osborne teaches expanding a laser beam to produce an expanded diameter laser beam, and focusing the expanded diameter laser beam to a strip of light (Figure 1, Col.2, lines 60 – 68, and Col.3, lines 1 – 32 and 66 – 68). It would have been obvious to one of ordinary skill in the art to utilize the laser beam focusing process of Osborne to focus the laser light in the photocuring process of Kruishoop with the reasonable expectation of (1) success, as Kruishoop generally teaches using an optical system comprising a plurality of lenses for focusing light into a line, and the laser beam focusing process of Osborne is a specific example of a process

specifically designed to focus laser light into a line (as desired by Kruishoop), and (2) obtaining the benefits of using the optical system / method of Osborne to focus the laser light into a line in the photocuring process of Kruishoop, such as its relative simplicity in comparison to the mirror-based optical focusing method taught by Kruishoop. Additionally, the combination of Kruishoop and Osborne does not explicitly teach that the strip of light (i.e., the laser beam focused into a line) has a diameter larger than a diameter of the fiber. Specifically, the aforementioned combination of references is silent regarding the relative diameters of the strip of light and the fiber. However, it is the desire of Kruishoop to cure the coating on the fiber as quickly as possible by (1) insuring that a substantially large portion of emitted light is incident on the fiber (Col.1, lines 35 – 40 and 60 – 68, and Col.2, line 1) and (2) reflecting any light rays which fall past the fiber back towards the fiber so that they become incident on the fiber (Col.2, lines 58 – 66). Therefore, it would have been obvious to one of ordinary skill in the art to focus the laser beam into a line having a diameter larger than a diameter of the fiber with the reasonable expectation of successfully and advantageously insuring that a large portion of emitted light is incident on the fiber (i.e., to insure that the entire fiber is exposed to the strip of laser light) and allowing any light rays which fall past the fiber to be reflected back towards the fiber in order to achieve a high curing speed, as desired by Kruishoop.

Regarding **Claims 9 and 10**, the combination of Kruishoop and Osborne also teaches that the apparatus further comprise a second lens disposed between the first lens and the concave optical element (Claim 9), the second lens comprising a

cylindrical lens (Claim 10) (Figure 1, reference number "5", and Col.3, lines 11 – 20 of Osborne). Regarding **Claim 19**, the combination of Kruishoop and Osborne also teaches that the laser source outputs radiation in a UV radiation range (Col.2, lines 12 – 13 of Kruishoop).

14. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kruishoop (USPN 4,849,640) in view of Osborne (USPN 4,069,080), in further view of either Ortiz, Jr. (USPN 4,958,900) or Kato (USPN 4,566,762).

15. The combination of Kruishoop and Osborne teaches all the limitations of **Claim 2** as set forth above in paragraph 13, except for an apparatus wherein the first lens comprises a plano-concave lens with a planar side disposed towards the beam expander. Specifically, the first lens of the optical focusing system of Osborne is a converging lens of the meniscus type (Figure 1, reference number "3", and Col.3, lines 7 – 11). Both Ortiz, Jr. (Figures 1 and 2, reference number "42", and Col.2, lines 27 – 30) and Kato (Figure 4A, reference number "21a", and Col.5, lines 52 – 53) teach that lenses comprising a plano-concave lens having a planar side disposed towards a light beam source can be utilized as converging lenses. It would have been obvious to one of ordinary skill in the art to incorporate a lens comprising a plano-concave lens with the planar side disposed towards the beam expander of Osborne in the apparatus of the combination of Kruishoop and Osborne (i.e., as opposed to the meniscus type lens taught by Osborne) with the reasonable expectation of success and obtaining similar results (i.e., successfully providing a

known type of converging lens in the apparatus of the combination of Kruishoop and Osborne, regardless of whether the converging lens is a meniscus type lens or a plano-concave lens).

16. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kruishoop (USPN 4,849,640) in view of Osborne (USPN 4,069,080), in further view of Petisce(1) (USPN 5,015,068) and Yamada et al. (USPN 6,033,829).

17. The combination of Kruishoop and Osborne teaches all the limitations of **Claim 3** as set forth above in paragraph 13, except for an apparatus wherein the laser source outputs radiation in a visible light range. Specifically, the laser of Kruishoop emits radiation in a UV-light range (Col.2, lines 12 – 13) and is used to cure a UV-curable coating on an optical fiber (Col.1, lines 11 – 26). Additionally, Kruishoop teaches that curing is the slowest step in the process, which means that the feed-through rate of the fiber is dictated by the curing speed (Col.1, lines 35 – 37). Petisce(1) teaches that, in the art of coating and curing optical fibers, higher curing speeds can be obtained by utilizing inner and outer coating layers that are cured by exposure to different portions of the light spectrum, specifically an inner layer that is cured by visible light and an outer layer that is cured by ultraviolet light (Abstract, Col.2, lines 61 – 68, Col.3, lines 1 – 20, Col.4, lines 25 – 68, and Col.5, lines 21 – 26). Yamada et al. teaches that it was known in the art at the time of the applicant's invention to cure photopolymerizable compositions by exposure to visible light emitted from visible light lasers (Col.2, lines 17 – 25 and Col.10, lines 48 – 58). It would have

been obvious to one of ordinary skill in the art to incorporate a visible light laser source (as well as the corresponding focusing means taught by Osborne) in the apparatus of the combination of Kruishoop and Osborne so that the apparatus would be capable of curing visible-light curable coatings on optical fibers (as taught by Petisce(1)) as well as UV-light curable coatings, thereby increasing the speed of the curing process and the feed-through rate of the fiber, as desired by Kruishoop.

18. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kruishoop (USPN 4,849,640) in view of Osborne (USPN 4,069,080), in further view of Petisce(1) (USPN 5,015,068) and Yamada et al. (USPN 6,033,829), and in further view of Tausch et al. (USPN 6,078,713).

19. The combination of Kruishoop, Osborne, Petisce(1), and Yamada et al. teaches all the limitations of **Claims 4 and 14** as set forth above in paragraphs 13 and 17, except for an apparatus / method wherein the laser source is a continuous wave laser (i.e., a laser continuously outputting light). Regarding Claim 14, please note that the combination of Kruishoop, Osborne, Petisce(1), and Yamada et al. teaches utilizing a laser beam that outputs light in a visible portion of the electromagnetic spectrum (see paragraph 17 above). Additionally, the aforementioned combination of references is silent regarding whether the laser source is a continuous wave laser or not. However, there are only two possible choices in this matter – the laser can be either a continuous wave laser or a pulsed laser. Tausch et al. teaches that it was known in the art at the time of the applicant's invention to utilize either a pulsed laser

or continuous wave (cw) laser light source in order to cure photoinitiated coatings (Col.2, lines 1 – 5). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a continuous wave laser (i.e., a laser continuously outputting light) in the process and apparatus of the combination of Kruishoop, Osborne, Petisce(1), and Yamada et al. with the reasonable expectation of (1) success, as Tausch et al. teaches that a cw laser can be utilized to cure coatings, and (2) obtaining similar results (i.e., curing the coating on the optical fiber), regardless of whether a pulsed laser or a cw laser is utilized.

20. Claims 5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kruishoop (USPN 4,849,640) in view of Osborne (USPN 4,069,080), in further view of Petisce(1) (USPN 5,015,068) and Yamada et al. (USPN 6,033,829), and in further view of Akerman et al. (EP 0 202 803 A2).

21. The combination of Kruishoop, Osborne, Petisce(1), and Yamada et al. teaches all the limitations of **Claims 5 and 15** as set forth above in paragraphs 13 and 17, except for an apparatus / method wherein the laser source is a pulsed laser (i.e., a laser outputting pulses of light). Regarding Claim 15, please note that the combination of Kruishoop, Osborne, Petisce(1), and Yamada et al. teaches utilizing a laser beam that outputs light in a visible portion of the electromagnetic spectrum (see paragraph 17 above). Additionally, the aforementioned combination of references is silent regarding whether the laser source is a pulsed laser or not. However, there are only two possible choices in this matter – the laser can be either

a continuous wave laser or a pulsed laser. Akerman et al. teaches that, in the art of curing polymeric coatings by utilizing laser irradiation, the total energy required to cure a coating can be markedly reduced by using pulsed laser light (Abstract, page 2, lines 30 – 34, and page 3, lines 1 – 8). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a pulsed laser (i.e., a laser outputting pulses of light) in the process and apparatus of the combination of Kruishoop, Osborne, Petisce(1), and Yamada et al. with the reasonable expectation of successfully and advantageously reducing the total energy required to cure the optical fiber coating, thereby making the process more economical.

22. Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kruishoop (USPN 4,849,640) in view of Osborne (USPN 4,069,080), in further view of Petisce(2) (USPN 5,000,772).

23. The combination of Kruishoop and Osborne teaches all the limitations of **Claims 6 and 13** as set forth above in paragraph 13, except for an apparatus / method further comprising a magnetic field source operable to apply a magnetic field about the fiber, and applying a magnetic field around the fiber. However, Kruishoop does teach that curing is the slowest step in the process, which means that the feed-through rate of the fiber is dictated by the curing speed (Col.1, lines 35 – 37). Petisce(2) teaches that, by incorporating a magnetic field source operable to apply a magnetic field about an optical fiber in an optical fiber curing apparatus, and applying a magnetic field around the fiber, the optical fiber curing speed can be increased,

thereby providing an overall increase in manufacturing line speed (Abstract, Col.2, lines 32 – 44, Col.5, lines 55 – 59, and Col.6, lines 30 – 60). Therefore, it would have been obvious to one of ordinary skill in the art to incorporate a magnetic field source into the curing apparatus of the combination of Kruishoop and Osborne and to use this source to apply a magnetic field around the fiber with the reasonable expectation of successfully and advantageously increasing the optical fiber curing speed, thereby increasing the overall optical fiber manufacturing line speed, as desired by Kruishoop.

24. Claims 7, 11, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kruishoop (USPN 4,849,640) in view of Osborne (USPN 4,069,080), in further view of Akerman et al. (EP 0 202 803 A2).

25. The combination of Kruishoop and Osborne teaches all the limitations of **Claims 7, 11, and 18** as set forth above in paragraph 13, except for an apparatus and method wherein the laser source is disposed at least 2 meters away from the fiber. Specifically, the combination of Kruishoop and Osborne is silent regarding the relative distance between the laser source and the fiber. However, Akerman et al. teaches that, in the art of curing coatings by using a laser beam, the laser source may be placed remote from the coating location since its light output is easily transmitted long distances (page 4, lines 24 – 28). Therefore, it would have been obvious to one of ordinary skill in the art to dispose the laser source of the combination of Kruishoop and Osborne "remote from the coating location" (i.e.,

remote from the fiber), including at a long distance of at least 2 meters from the fiber, with the reasonable expectation of (1) success, as laser light is easily transmitted long distances, and (2) obtaining the benefits of locating the laser a long distance from the fiber, such as (a) not physically interfering with the moving optical fiber and (b) reducing the risk of contaminating the laser source with volatile components that are emitted from the fiber coating during the curing process. The exact distance between the fiber and the laser source would have been chosen by the purveyor in the art depending upon various process and apparatus constraints (e.g., where it is most feasible to mount the laser source).

26. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kruishoop (USPN 4,849,640) in view of Osborne (USPN 4,069,080), in further view of Petisce(2) (USPN 5,000,772), and in further view of Tausch et al. (USPN 6,078,713) and Field et al. (USPN 6,195,486 B1).

27. The combination of Kruishoop, Osborne, and Petisce(2) teaches all the limitations of **Claim 8** as set forth above in paragraphs 13 and 23, except for a method wherein the laser source is a continuous wave laser emitting light in the UV range between 300 and 400 nm. However, the laser source of Kruishoop is a UV-laser in general (Col.2, lines 12 – 13), and Field et al. teaches that UV-light is considered to have a wavelength of about 200 – 400 nm (i.e., a range overlapping the applicant's claimed range) in the art of light curable resins (Col.5, lines 37 – 57). Additionally, the combination of Kruishoop, Osborne, and Petisce(2) is silent regarding whether the

laser source is a continuous wave laser or not. However, there are only two possible choices in this matter – the laser can be either a continuous wave laser or a pulsed laser. Tausch et al. teaches that it was known in the art at the time of the applicant's invention to utilize either a pulsed laser or continuous wave (cw) laser light source in order to cure photoinitiated coatings (Col.2, lines 1 – 5). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a continuous wave laser (i.e., a laser continuously outputting light) emitting at a UV-wavelength of between 300 and 400 nm in the process and apparatus of the combination of Kruishoop, Osborne, and Petisce(2) with the reasonable expectation of (1) success, as Tausch et al. teaches that a cw laser can be utilized to cure coatings, and Field et al. teaches that UV-light is considered to have a wavelength of about 200 – 400 nm (i.e., a range overlapping the applicant's claimed range) in the art of light curable resins, and (2) obtaining similar results (i.e., curing the coating on the optical fiber), regardless of whether a pulsed laser or a cw laser is utilized.

28. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kruishoop (USPN 4,849,640) in view of Osborne (USPN 4,069,080), in further view of Field et al. (USPN 6,195,486 B1).

29. The combination of Kruishoop and Osborne teaches all the limitations of **Claim 16** as set forth above in paragraph 13, except for a method wherein the laser beam emits in the range of 300 – 400 nm. However, the laser source of Kruishoop is a UV-laser in general (Col.2, lines 12 – 13). Field et al. teaches that UV-light is considered

to have a wavelength of about 200 – 400 nm (i.e., a range overlapping the applicant's claimed range) in the art of light curable resins (Col.5, lines 37 – 57). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a laser that emits in the claimed range of 300 – 400 nm in the process of the combination of Kruishoop and Osborne because such a wavelength range is encompassed by the wavelength of UV-light (as taught by Field et al.), and Kruishoop teaches using a UV-light emitting laser in general.

30. Claims 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kruishoop (USPN 4,849,640) in view of Osborne (USPN 4,069,080), in further view of Petisce(1) (USPN 5,015,068), Yamada et al. (USPN 6,033,829), and Field et al. (USPN 6,195,486 B1).

31. The combination of Kruishoop, Osborne, Petisce(1), and Yamada et al. teaches all the limitations of **Claims 17 and 20** as set forth above in paragraphs 13 and 17, except for a method / apparatus wherein the laser source emits radiation in the range of 400 – 800 nm. However, the aforementioned combination of references reasonably suggests using a laser light source that emits in the visible portion of the spectrum in general (see paragraph 17 above). Field et al. teaches that visible light is considered to have a wavelength of about 400 – 700 nm (i.e., a range lying entirely within the applicant's claimed range) in the art of light curable resins (Col.5, lines 37 – 57). It would have been obvious to one of ordinary skill in the art to utilize a laser that emits in the claimed range of 400 – 800 nm in the process and

apparatus of the combination of Kruishoop, Osborne, Petisce(1), and Yamada et al. because the aforementioned combination of references teaches using a visible light laser in general, and Field et al. teaches that visible light is considered to have a wavelength of about 400 – 700 nm (i.e., a range lying entirely within the applicant's claimed range) in the art of light curable resins.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (571) 272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

WDM

Wesley D Markham
Examiner
Art Unit 1762

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